REMARKS

The present Amendment cancels claims 1-14 and adds new claims 15-20. Therefore, the present application has pending claims 15-20.

Claims 1-14 stand rejected under 35 USC §112, first paragraph as allegedly failing to comply with the enablement requirement; Claims 1-14 stand rejected under 35 USC §112, second paragraph being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as their invention; claims 1, 4-9, 11 and 13 stand rejected under 35 USC §103(a) as being unpatentable over Ghosh (U.S. Patent No. 6,366,601 B1) in view of Bender (U.S. Patent No. 6,888,805) Budka (U.S. Patent No. 6,330,288) and Tanaka (U.S. Patent No. 5,781,542); claims 2 and 3 stand rejected under 35 USC §103(a) as being unpatentable over Ghosh, Bender, Budka and Tanaka and further in view of Webster (U.S. Patent Application Publication No. 2004/0056785 A1) and Pathak (U.S. Patent No. 7,016,317); claim 10 stands rejected under 35 USC §103(a) as being unpatentable over Ghosh, Bender, Budka and Tanaka and further in view of Martini (U.S. Patent No. 7,039,837) and claims 12 and 14 stand rejected under 35 USC §103(a) as being unpatentable over Hata (U.S. Patent Application Publication No. 2002/0136190), Budka and Shirakata (U.S. Patent No. 6,618,352). As indicated above, claims 1-14 were canceled. Therefore, the above noted 35 USC §112, first and second paragraph rejections and the 35 USC §103(a) rejections are rendered moot. Accordingly, reconsideration and withdrawal of these rejections is respectfully requested.

It should be noted that the cancellation of claims 1-14 was not intended nor should it be considered as an agreement on Applicants part that the claims contain non-enabled or indefinite subject matter, or the features recited in claims 1-14 are taught or suggested by Ghosh, Budka, Bender, Tanaka, Hata, Webster, Pathak, Martini and Shirakata or any of the references of record whether taken individually or in combination with each other. The cancellation of claims 1-14 was simply intended to expedite prosecution of the present application. Applicants hereby reserve their right to pursue the invention as set forth in claims 1-14 in a continuing application.

As indicated above, the present Amendment adds new claims 15-20. New claims 15-20 are directed to a code-modulation adaptive and variable multiplexing apparatus and method.

According to the present invention, a novel multiplexing transmission apparatus and method is provided having unique advantages relative to conventional apparatus.

Further, according to the present invention a transmission unit is controlled by a transmission unit controlling circuit based on transmission condition information. Based on said control, the to-be-transmitted information data is divided into transmission signals for a plurality of sub-channels and processing of coding, primary modulation and secondary modulation for respective ones of the sub-channels are made in parallel to thereby lower the required processing speed. Low speed converters can be used in the present invention instead of DA and AD converters that are generally difficult to increase the operating speed and moreover. Further, by frequency-multiplexing a plurality of sub-channels to transmit information as a channel for one and the same user, it becomes possible in the present invention to provide a multiplexing transmission apparatus and method capable of higher data transmission.

The references of record do not teach or suggest the following features of the present invention as recited in the claims:

1. a code-modulation adaptive and variable multiplexing transmission apparatus in which transmission is made such that transmission information data is divided into transmission signals on plural transmission sub-channels;

2. a transmission condition identifying circuit which identifies transmission condition information;

3. a transmission unit controlling circuit which controls said transmission unit based on transmission condition information identified by said transmission condition identifying circuit;

4. a data dividing circuit which divides said transmission information data into transmission signals each for one of said plural transmission sub-channels under the control of said transmission unit controlling circuit;

5. plural coders, one for each of said plural transmission sub-channels, each for performing an error-correction coding, in parallel, on respective one of said plural transmission signals divided by said data dividing circuit, by using a coding scheme and a coding ratio, plural primary modulators each for performing a multilevel modulation, in parallel, on respective one of said transmission signals on respective transmission sub-channels acquired from respective ones of said plural coders and plural

secondary modulators each for performing, in parallel, a transmission-band broadening on a multi-level-modulated signal on a transmission sub-channel acquired from each of said plural primary modulators;

6. an addition circuit which adds, for each transmission sub-channel, to associated transmission signal, transmission condition information including a coding scheme and coding ratio of said each coder, a multilevel modulation scheme of said each primary modulator, a band-broadening scheme of said each secondary modulator and the number of said plural transmission sub-channels; and

7. a frequency multiplexing circuit which frequency multiplexes band-broadened modulation outputs obtained from respective secondary modulators on said respective transmission sub-channels to output a resultant frequency multiplexed output as a channel for one and the same user.

Therefore, as is clear from above, the above described features of the present invention now more clearly recited in new claims 15-20 are not taught or suggested by each of the above noted references of record whether said references are taken individually or in combination with each other. Accordingly, the above noted references do not anticipate nor render obvious the claimed invention whether said references are taken individually or in combination with each other.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-14.

In view of the foregoing amendments and remarks, Applicants submit that claims 15-20 are in condition for allowance. Accordingly, early allowance of the present application based on claims 15-20 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (500.43214X00).

Respectfully submitted,

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